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S. H. McCrory, Chief

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In accordance with a decision of the Comptroller General, transportation requests are to be used wherever practicable in paying for ferry charges in excess of $1.00. If cash fare is paid explanation must be made in expense account as to the reason therefor.

During the latter part of March and early April S. H. McCrory made a field trip which included the inspection of the cotton ginning laboratory in charge of Chas. A. Bennett, at Stoneville, Miss.; the spraying machinery studies being conducted by E. M. Lieffenbach at Albany, Ga.; and the drainage project recently started by F. E. Staebner at the Everglades Experiment Station, Belle Glade, Florida.

Mr. McCrory visited State College, Pennsylvania, on April 12, at the request of the college officials where he met the members of the agricultural staff and addressed the students of the agricultural engineering course.

Reference was made in the February NEWS LETTER to the setting up of a committee for National Land Use Planning by the National Conference on Land Utilization held last year at Chicago. The planning committee has established 11 subcommittees on which members of this Bureau have been designated to serve as follows:

W. W. McLaughlin is Chairman of the committee on reclamation, irrigation, and drainage.

L. A. Jones is a member of the committee on submarginal areas.

Geo. R. Boyd is a member of the committee on adjustments and farm reorganization on better farming areas.

Mr. McLaughlin called a meeting of his committee at the Bureau headquarters on April 15. All members were present or represented. The farm reorganization committee held a meeting in Washington on April 22. All of the subcommittee are expected to hold meetings preparatory to making a preliminary report to the main planning committee at their next meeting to be held at Washington in June.

The Senate and House conferees have reported back the Agricultural appropriation bill of 1933 with recommendations that the bill be passed with the changes agreed to in the conference. The bill is awaiting action

by the two houses on the conference report. The conferees made no change in the Agricultural Engineering appropriation.

Geo. R. Boyd is visiting a number of drainage districts in southwestern United States for the purpose of familiarizing himself with their present operating and financial status. This information is to be used chiefly in connection with the activities of the Land Utilization subcommittee previously mentioned. G. R. Shier is assisting Mr. Boyd in this study.

S. P. Lyle spent the last ten days of March with extension workers in Michigan, Wisconsin, and Ohio.

At the request of the extension committee of the College division, A.S.A.E., Mr. Lyle is preparing a program for the extension agricultural engineers' conference to be held at Columbus, Ohio, on June 16, 17, and 18. Wallace Ashby of this Bureau will give a paper relating to the Presidents' conference on home building and home ownership which will treat of the extension features of the subject. L.A. Jones will give a paper on terrace recommendations which will make available to extension workers the most recent conclusions from the experimental field.

J. G. Sutton has completed and forwarded to Washington the redraft of a manuscript on "The Design of Drainage Pumping Plants."

D. G. Miller has submitted a manuscript by himself and Philip W. Manson entitled "Laboratory and Field Tests of Concrete exposed to the Action of Sulphate Waters," which covers cooperative investigations made during the past several years. It is expected that Mr. Miller will next undertake some work on the treatment of the walls of silos to prevent injury by acids, on both concrete silos and the joints of clay tile silos. He will also study the effects of various injurious agents on concrete floors of creameries and concrete machine foundations.

W. D. Ellison reports that the ditch cleaning equipment described in the March NEWS LETTER makes it possible to remove sediment from ditches at a cost of 12 to 15 cents per cubic yard.

D. L. Yarnell has submitted a report entitled "A Hydraulic Investigation of the Standard Reinforced Concrete Bridge Pier of the North Carolina State Highway Commission."

C. E. Ramser spent about ten days at La Cross, Wis. during the first part of April assisting with the work of laying out and starting the engineering experiments on the soil erosion experimental station located about 5 miles from La Crosse. He also conferred with the following representatives of the Wisconsin State Agricultural Experiment Station with regard to the experimental work: E. R. Jones, Head of the Department of Agricultural Engineering, O. R. Zeasman, Agri-

cultural Extension Engineer, and A. R. Whitson, Head of the Department of Soils.

G. R. Ryerson reported at La Crosse, Wis. on April 1 to take charge of the engineering experimental work on the Upper Mississippi Valley Soil Erosion Station. The construction of experimental terraces has been started with a Cletrac 15 tractor and a Caterpillar terracer. It is planned to complete the terracing work in ten days or two weeks.

Observations by P. C. McGrew on the Pullman soil erosion farm indicate that a much greater spacing of terraces from the standpoint of removing run-off water can be used than is usually practiced in the Middle West, since the run-off is caused by comparatively light rains and slowly melting snows. Also it has been found that a much greater fall can be given terraces without undue erosion in the terrace channel than is generally the case in the Middle West because the soil is quite pervious.

R. W. Baird reports that in two experiments on the Tyler farm to compare the effect of variable and uniform grades upon soil and water losses, it was found that smaller losses occurred for the variable graded terrace in 1931. Two terraces 700 feet long, one with uniform grade of 6 inches per 100 feet and the other with variable grade of 0 to 6 inches per 100 feet lost 9.82 tons of soil per acre and 20.3 per cent of the rainfall, and 5.8 tons of soil per acre and 15.3 per cent of the rainfall, respectively. Two other terraces 1,700 feet long, one with uniform grade of 3 inches per 100 feet and the other with variable grade of 0 - 3 inches per 100 feet, lost 5.29 tons of soil per acre and 13.2 per cent of the rainfall, and 3.84 tons of soil per acre and 6.9 per cent of the rainfall, respectively.

H. S. Riesbol reports that the effect of grade upon erosion in a terrace channel was demonstrated in an experiment on the Guthrie soil erosion project where the grades of the terraces are: level, 2, 4 and 6 inches per 100 feet. The soil losses from the above terraces were 1.25, 1.99, 1.82, and 5.46 tons of soil per acre, respectively, over four times as much soil being lost from the terrace with a grade of 6 inches per 100 feet as from the level terrace and three times as much as from the terraces with grades of 2 and 4 inches per 100 feet. No reason has yet been found for the similarity of soil losses from the terraces with grades of 2 and 4 inches per 100 feet.

Leslie Bowen, who for some months has been stationed at Yakima, Wash., assisting Mr. Jessup in tabulation of results of last season's work on the Kootenai Project, Idaho, left Yakima March 26 for his new station at Scottsbluff, Nebr., stopping en route to inspect the Bear Bay Migratory Bird Refuge Project, Utah, on which work he had formerly been engaged. Mr. Bowen will conduct investigations of consumptive use of water at Scottsbluff.

A. T. Mitchelson spent the week beginning March 12 in the vicinity of Los Angeles. A conference regarding water-spreading methods was held with the chief engineer of the Los Angeles County Flood Control District,

and with various engineers and city, county, and State officials interested in water spreading. Inspection was made of the various water-spreading projects in that vicinity.

Karl Harris started experiments for the determination of wilting point of four fields near Phoenix, Ariz. Soil was collected in foot sections and placed in gallon cans, four duplicate samples to four feet. Half of these were planted to wheat and half to dwarf sunflowers. A grapefruit, an orange and a date grove has been selected for soil moisture studies during the coming season.

Wells A. Hutchins, most of whose time at present is spent in connection with the project on financial rehabilitation of irrigation enterprises, reports an important decision by the California Supreme Court on March 1 to the effect that an irrigation district, on taking a deed to land for unpaid assessments, becomes entitled to cancellation of all State and county taxes and city taxes then outstanding against the land. The district can then sell the land free and clear of such encumbrances.

L. T. Jessup left Yakima, Washington, for Washington, D.C. March 12, stopping at Joliet, Ill., for a conference on land appraisal for right of way for the Illinois River waterway, and also conferred with a representative of the Geological Survey in Chicago. Following conferences in Washington with Messrs. McCrory and McLaughlin and various officials of the U.S. Geological Survey relative to the Kootenai, Idaho, investigation, it was decided to continue that investigation on a somewhat reduced scale and to ask the International Joint Commission to delay the hearing until this fall. In reference to the Malheur Lake work, Oregon, Mr. Jessup reports that the Bureau of Biological Survey has filed claim for a water right and also is contesting the claims of others, particularly with reference to the date of priority for a large area owned by the Eastern Oregon Livestock Company. Mr. Jessup has collected data, served as expert witness, and assisted the Government Attorney in the conduct of the case.

J. C. Marr, in connection with project on depth to which the water table in waterlogged alkali land of irrigated sections must be lowered to effect reclamation, reports that all of the early spring work at the Helms experimental tract near Caldwell, Idaho, where this study is being carried on, has been completed, and until other regular farming and experimental activities begin, attention will be diverted to the leveling of several areas which must be put in shape for irrigation this year in order to meet the provisions of our lease. All of the irrigation ditches on the tract and the deep open drain have been cleaned. Eighteen geese were raised in the drain last year and will be available this year as a control measure for water-cress. One noticeable condition of chemically treated plots is that they are fairly dry while some of the adjoining check plots contain large ponds of water from spring rains.

Carl Rohwer submitted a report on "Evaporation from Salt Solutions and Oil-covered Water Surfaces" for publication in the Journal of Agricultural Research. This report completed the evaporation project as originally planned, but if time is available this summer, some experiments may be conducted to determine the effect of small quantities of copper sulfate and formaldehyde on evaporation and on the growth of algae in the water.

Fred C. Scobey gave an informal address on "New Conduit Surfaces and Unusual Flow Conditions" illustrated with lantern slides, before the Student Chapter A.S.C.E. of the University of California, on March 17, about 80 men being present.

L. M. Winsor submitted a manuscript for a bulletin of the Department on "Floods from Mountain Streams and Their Control." The report is based on investigations carried on cooperatively with the Utah Agricultural Experiment Station and deals with the problem of controlling streams which must be utilized for irrigation by direct diversion, if at all, and not with the larger reclamation projects requiring the construction of storage reservoirs.

A. A. Young describes what is said to be the largest plow in the world, now operating in Orange County, California. It is the only one of its kind and was designed and built to meet conditions existing in the lower Santa Ana river valley adjoining the sea coast. Originally this area was fertile land, but overflows from the Santa Ana river during floods deposited one to two feet of sand upon the rich soil rendering it useless for crop production. Later this sand deposit was claimed by a growth of Bermuda grass. This plow is intended to overcome these conditions by turning the sand under and bringing the previous surface to the top. This requires two plow shares. The smaller one, which is of good size in itself, sets forward and higher than the larger share which is able to plow a furrow 36 to 42 inches in depth and three feet in width. The forward share turns the surface sand and Bermuda grass into the previous deep furrow where it is covered by the fertile soil turned up by the large share. The plow is four feet high, 22 feet long, and a hydraulic lift is used to raise and lower it when turning. It is reported to weigh about one ton, to have cost $2,000, and to be capable of plowing five acres a day, being drawn by three heavy tractors running in low gear.

Early in April R. B. Gray conferred with manufacturers of endgate seeders at Chicago, relative to altering these machines for use in distributing poisoned bran mash for grasshopper control.

Mr. Gray left Washington for Toledo April 22 for the purpose of conferring on matters relating to the corn borer project. On April 25 he plans to meet two other members of the A.S.A.E. Fuels and Lubricants Committee at Canton, Ohio, from which point they will start on a two weeks' trip calling on the agricultural tractor and engine manufacturers. En route he plans to call on C. K. Shedd, directing the corn production project at Ames, Iowa and Thayer Cleaver, cooperating with the University of Illinois at Urbana on the investigations directed toward meeting the corn borer menace when it reaches that State.

R. M. Merrill of the Toledo office visited State College, Pa., April 4, for a conference on corn borer matters with Profs. R. U. Blasingame and A. W. Clyde.

A. H. Glaves went to State College, Pa. to supervise experimental plowing tests in connection with corn borer control.

A device for registering continuously the depth of plowing during draft tests has been designed and constructed at the Toledo office and is ready for field tests.

A Netco power sprayer truck outfit was recently shipped from Toledo to E. M. Dieffenbach, Albany, Ga., for his use in spraying equipment investigations.

W. H. Redit took an experimental potato machine to Philadelphia in readiness for use in connection with work in New Jersey to be started April 26. Later he went to Tifton, Ga., with the cotton experimental machine where he was joined by G. A. Cumings who will supervise the work. Since that time they have been conducting experimental cotton planting at several points in South Carolina. A. L. Sharp, who has been working with an experimental cotton planter at College Station, Texas, left for Baton Rouge, La., April 23 to do similar work in that locality.

On April 18, E.M. Mervine presented before the Technical Society of the Great Western Sugar Company a paper prepared jointly by R. E. Beckett of the Great Western Sugar Company and himself, covering results of his investigations with sugar beet machinery.

J. W. Randolph, assisted by H. Mauer, has been conducting draft tests and making other observations the past few weeks on the Prattville plots in Alabama, and on the Delta and Starkville plots in Mississippi in connection with the cotton machinery project.

D. A. Isler returned to Presidio, Texas, from Phoenix, Ariz., where he had been conducting control experiments in cooperation with the Bureau of Entomology directed against the pink bollworm.

W. M. Hurst reports that the manuscript "Power and Machinery: Their Part in Agriculture" has been submitted to the Research Committee for consideration. The manuscript on "Direct Harvesting and Artificial Drying of Rice" has also been completed.

Wallace Ashby, with R. C. Wright of the Bureau of Plant Industry, spent March 20 to 23 at Presque Isle, Maine, in connection with the project on storage of potatoes carried on by A. D. Edgar. Shipments made from the test bins showed unusually small storage losses. The test house was drier and there was less sprouting than in other houses nearby.

G. M. Warren has completed a revision of Farmers' Bulletin 1426 - "Farm Plumbing."

S. J. Dennis has completed a set of Federal Specifications for gun type sprayers.

The Minutes of the Advisory Committee of the College Division, A.S.A.E. were prepared and printed in mimeograph form by the Bureau, as the April Number of THE CONFESSOR.

A. H. Sonner spent April 13 and 14 discussing the recently completed greenhouse heating bulletin with greenhouse heating engineers of the Lord and Burnham Co., of Irvington, N.Y. These engineers were especially interested in the possibility of using unit heaters in the commercial vegetable and flower houses, and suggested some interesting lines of research in this connection.

M.A.R. Kelley has just returned to the Washington office from Genesee Depot, Wis. where he has been all winter conducting a test on the influence of stable temperatures on milk production. This completes collection of data in a large scale study of the effect of housing conditions of dairy cows, such as stable temperature, ventilation, lighting, and other factors upon the yield of milk and butter fat. This study was made in cooperation with the Departments of Animal Husbandry and Agricultural Engineering of the University of Wisconsin, and with Brook Hill Farms, Inc., which is one of the largest dairy farms in the Middle West. Ordinarily 500 to 700 cows are milked daily. A barn housing 100 cows was divided into four sections, permitting four sets of temperature and stable conditions to be run simultaneously. The temperature range in the separate units was from 45 to 65 degrees. Each section was filled with cows which were carefully selected so as to be of the same plane and period of lactation and of the same weight. Each section was fed the same amount of feed and the results measured by recording individual milk weights and butter fat twice each day. Respiration, pulse, and body temperatures were secured of a representative lot in each section. In addition to these factors, water and food consumption, stable temperature, humidities, ventilation, illumination, wind velocities, and barometric pressures were recorded.